

The listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. **(Previously Presented)** A method of forming an optical fiber preform, the method comprising::

    providing a consolidated glass preform precursor body having an outer surface;

    depositing a layer of silica soot onto the outer surface of the consolidated glass preform precursor body to form a composite preform comprised of a consolidated glass portion and a silica soot portion; and

    in a deuterium-exposing step, exposing the composite preform to an atmosphere containing a concentration of D<sub>2</sub> or D<sub>2</sub>O or a mixture of D<sub>2</sub> or D<sub>2</sub>O for a time and at a temperature sufficient to cause the D<sub>2</sub> or D<sub>2</sub>O to penetrate the consolidated glass portion without entirely pervading the consolidated glass portion.

2. **(Previously Presented)** The method of Claim 1 wherein the depositing step further comprises forming a hydroxyl species in the consolidated glass preform precursor body.

3. **(Previously Presented)** The method of Claim 2 wherein at least a portion of the hydroxyl species in the consolidated glass preform precursor body is exchanged with at least a portion of the D<sub>2</sub> or D<sub>2</sub>O in the consolidated glass portion to form OD in the consolidated glass portion.

4. **(Previously Presented)** The method of Claim 1 further comprising, after the depositing step, exposing the composite preform to a dehydration atmosphere comprising one or more of Cl<sub>2</sub>, CCl<sub>2</sub>, SOCl<sub>2</sub>, SiCl<sub>4</sub>, GeCl<sub>4</sub>, and POCl<sub>3</sub>.

5. **(Previously Presented)** The method of Claim 4 wherein the dehydration atmosphere further comprises an inert gas.

6. **(Previously Presented)** The method of Claim 1 wherein, the composite preform is exposed to a dehydration atmosphere prior to the deuterium-exposing step, wherein the dehydration atmosphere comprises one or more of Cl<sub>2</sub>, CCl<sub>2</sub>, SOCl<sub>2</sub>, SiCl<sub>4</sub>, GeCl<sub>4</sub>, and POCl<sub>3</sub>.
7. **(Original)** The method of Claim 4 wherein the composite preform is exposed to a purge atmosphere comprising an inert gas prior to the deuterium-exposing step.
8. **(Previously Presented)** The method of Claim 4 wherein the composite preform is exposed to a dehydration atmosphere comprising one or more of Cl<sub>2</sub>, CCl<sub>2</sub>, SOCl<sub>2</sub>, SiCl<sub>4</sub>, GeCl<sub>4</sub>, and POCl<sub>3</sub>, and then the composite preform is exposed to a purge atmosphere comprising an inert gas, prior to the deuterium-exposing step.
9. **(Original)** The method of Claim 4 wherein the composite preform is exposed to a purge atmosphere comprising an inert gas after the deuterium-exposing step.
10. **(Previously Presented)** The method of Claim 4 wherein the composite preform is exposed to the dehydration atmosphere after the deuterium-exposing step.
11. **(Previously Presented)** The method of Claim 4 wherein, after the deuterium-exposing step, the composite preform is exposed to a purge atmosphere comprising an inert gas, and then the composite preform is exposed to the dehydration atmosphere.
12. **(Previously Presented)** The method of Claim 1 further comprising consolidating the silica soot portion to form a second glass portion whereby the composite preform is transformed into a second consolidated glass preform precursor body.
13. **(Previously Presented)** The method of Claim 12 further comprising depositing an additional layer of silica soot onto the second consolidated glass preform precursor body to form a second composite preform and then exposing the second composite preform to D<sub>2</sub> or D<sub>2</sub>O.

14. **(Previously Presented)** The method of Claim 13 further comprising heating and drawing the second consolidated glass preform precursor body to a reduced diameter prior to depositing the additional layer of silica soot thereon.

15. **(Canceled)**

16. **(Previously Presented)** The method of Claim 1 wherein the consolidated glass preform precursor body is generally cylindrical about a centerline axis, wherein at least a portion of the consolidated glass preform precursor body extends to an outer radius  $RC_1$  measured from the centerline axis, and wherein the concentration of any OD present in the consolidated glass preform precursor body at all radii less than about 0.25  $RC_1$  is less than 0.1 ppm.

17. **(Previously Presented)** The method of Claim 2 wherein less than 0.1 ppm OD is formed in the consolidated glass portion at all radii less than about one-fourth the outer radius of the consolidated glass preform precursor body.

18. **(Previously Presented)** The method of Claim 16 wherein the OD concentration at all radii less than about 0.5  $RC_1$  is less than 0.1 ppm.

19. **(Previously Presented)** The method of Claim 16 wherein the OD concentration at all radii less than about 0.75  $RC_1$  is less than 0.1 ppm.

20. **(Canceled)**